

SHAKE THE FUTURE.



MASTER OF SCIENCE, TECHNOLOGY AND HEALTH

CITY AND URBAN ENVIRONMENTS

ATMOSPHERE, WATER AND ENVIRONMENT

YEAR 1

PROGRAMME SUPERVISORS:
LAURENT PERRET & ISABELLE CALMET

YEAR 1 - AUTUMN SEMESTER

Energetics and Building heat transfers

Fluid Mechanics 1

Introduction to Research

Introduction to Geographic Information Sciences

Algorithmics for Engineering Modeling

Business Environment

Cultural and Communication English

French Language

ENERGETICS AND BUILDING HEAT TRANSFERS

CITY AND URBAN ENVIRONMENTS - ATMOSPHERE, WATER AND ENVIRONMENT
YEAR 1 - AUTUMN SEMESTER

LEAD PROFESSOR: Bruno LACARRIERE

Objectives

At the end of the course (30 hours + personal work) the students will be able to:

- apply basics in heat transfer and thermodynamics
- identify and calculate comfort parameters (sensible and latent)
- identify and consider outdoor weather conditions
- do an energy balance
- pre-design an air conditioning system
- propose solutions for energy efficient actions in buildings
- acquire their first experience in using an energy and building simulation tool.

Course contents

This course aims to present the different parameters that affect the energy efficiency of buildings, the necessary integrated approach between envelope performance, occupancy and energy systems. An introduction to energy and building simulation tools is also provided.

Course material

- Lecture notes
- Heat and mass transfer books (e.g. Incropera et al.)
- Pleiades+COMFIE modelling tool

LANGUAGE OF INSTRUCTION	ECTS CREDITS	LECTURES	TUTORIALS	LABO	PROJECT	EXAM
English	4	14 hrs	8 hrs	8 hrs	0 hrs	2 hrs

FLUID MECHANICS 1

CITY AND URBAN ENVIRONMENTS - ATMOSPHERE, WATER AND ENVIRONMENT
YEAR 1- AUTUMN SEMESTER

LEAD PROFESSOR: Guillaume DUCROZET

Objectives

At the end of the course (30 hours + personal work) the students will be able to:

- Describe the main physical properties of a fluid.
- Identify the specificities of fluid mechanics in the continuum mechanics framework (i.e. compared to solid mechanics).
- Identify the non-dimensional numbers at play in any fluid mechanics problem and deduce how to perform experiments with appropriate similarity.
- Understand the notion of stresses and its representation through stress tensor.
- Describe the physical meaning of each term in the Navier-Stokes' equations
- Identify the different flow regimes.
- Evaluate the generalized force applied on any object in still water.
- Understand when the perfect fluid assumption is valid.

Course contents

This course aims to present the foundations and general principles of fluid mechanics. The lectures cover the following topics:

- Physics of fluids
- Dimensional analysis
- Stress tensors and fluids
- Navier Stokes' equations
- Flow regimes: introduction to turbulence
- Fluid statics
- Bernoulli's equation for a perfect fluid

In addition to those lectures, tutorials and lab sessions will allow the students to apply the theoretical knowledge to practical configurations.

Course material

- F. White, Fluid mechanics, McGraw-Hill, New York.
- B.R. Munson et al., Fundamentals of fluid mechanics, John Wiley, New York.

LANGUAGE OF INSTRUCTION	ECTS CREDITS	LECTURES	TUTORIALS	LABO	PROJECT	EXAM
English	5	14 hrs	12 hrs	4 hrs	0 hrs	2 hrs

INTRODUCTION TO RESEARCH

CITY AND URBAN ENVIRONMENTS - ATMOSPHERE, WATER AND ENVIRONMENT
YEAR 1 - AUTUMN SEMESTER

LEAD PROFESSOR: Boris CONAN

Objectives

At the end of the course (30 hours + personal work) the students will be able to:

- master the different steps of scientific dissemination
- conduct thorough bibliographic research using appropriate tools
- write a bibliographic review
- present his/her work in a congress-like situation
- elaborate a critical review of a peer's work, literature article, and his/her own work

Course contents

This course aims to present the common rules of scientific publication and to provide an overview of the scientific press. As part of the course, a mini-symposium is organised where students will experience conducting literature review using bibliographic research and scientific writing tools introduced in the course. In this exercise, students have to present a bibliographic study on a subject of their choice by writing a bibliographic article and by presenting it in a mini-symposium organized by students.

Course material

LANGUAGE OF INSTRUCTION	ECTS CREDITS	LECTURES	TUTORIALS	LABO	PROJECT	EXAM
English	4	8 hrs	8 hrs	0 hrs	14 hrs	2 hrs

INTRODUCTION TO GEOGRAPHIC INFORMATION SCIENCES

CITY AND URBAN ENVIRONMENTS - ATMOSPHERE, WATER AND ENVIRONMENT
YEAR 1 - AUTUMN SEMESTER

LEAD PROFESSOR: Gwendall PETIT

Objectives

At the end of the course (30 hours + personal work) the students will be able to:

- Understand the concepts inherent in geographic information systems,
- Exchange with geomaticians (experts in GIS), using the same vocabulary,
- Develop spatial reasoning (how spatial objects interact with each other? What are the relationships between them? ...),
- Manipulate GIS software (e.g Qgis and OrbisGIS),
- Create maps, following graphic semiology rules,
- Understand the concept of Spatial Data Infrastructure (SDI).

Course contents

This course aims to present the field of Geographic Information Sciences (GIS) from theoretical and practical points of view. The theoretical part will mainly be focused on the presentation of the main concepts related to GIS (definition, vocabulary, data type), Spatial analysis, cartography and Spatial Data Infrastructure. The practical part will focus on the use of two free and open-source GIS software tools (Qgis and OrbisGIS) and with the discovery and use of the Spatial SQL language, which will be used to manipulate and process geographic information.

Course material

- The GIS Primer, BUCKLEY D.J. (<http://www.innovativegis.com/basis/primer/primer.html>)
- Geospatial Analysis: A Comprehensive Guide to Principles, Techniques, and Software Tools Smith, Goodchild, Longley 2007 (<http://www.spatialanalysisonline.com/>)
- Principles of Geographic Information Systems, Burrough and McDonnell (<https://www.amazon.co.uk/Principles-Geographic-Information-Systems-2nd/dp/0198233655>)

LANGUAGE OF INSTRUCTION	ECTS CREDITS	LECTURES	TUTORIALS	LABO	PROJECT	EXAM
English	5	14 hrs	16 hrs	0 hrs	0 hrs	2 hrs

ALGORITHMICS FOR ENGINEERING MODELING

CITY AND URBAN ENVIRONMENTS - ATMOSPHERE, WATER AND ENVIRONMENT

YEAR 1 - AUTUMN SEMESTER

LEAD PROFESSOR: Jose-Vicente AGUADO / Domenico BORZACCHIELLO

Objectives

At the end of the course the students will be able to:

- Identify and properly apply numerical methods to different engineering problems
- Understand algorithmic aspects and handle practical implementation issues
- Program and optimize algorithms in Matlab/Octave
- Use standard libraries for scientific computing in Matlab/Octave

Course contents

The course proposes a gentle introduction to numerical methods in scientific computing and their respective algorithms through practical problems that are often encountered in engineering applications. It will cover five fundamental topics : interpolation and differentiation, numerical quadrature, time-stepping integration techniques for ordinary differential equations, iterative solvers and nonlinear solvers.

Each topic will be presented through a practical application, that will serve as a basis to review implementation aspects as well as theoretical principles of the numerical methods involved. Several exercises in Matlab/Octave are proposed.

Course material

- Slides and Course Notes

LANGUAGE OF INSTRUCTION	ECTS CREDITS	LECTURES	TUTORIALS	LABO	PROJECT	EXAM
English	4	10 hrs	20 hrs	0 hrs	0 hrs	2 hrs

BUSINESS ENVIRONMENT

CITY AND URBAN ENVIRONMENTS - ATMOSPHERE, WATER AND ENVIRONMENT
YEAR 1 - AUTUMN SEMESTER

LEAD PROFESSOR: Spencer HAWKRIDGE

Objectives

- Understand the general concepts of business English and marketing principles
- Understand the principles of given business models (for example: the collaborative economy)
- Build a professional project and explore international opportunities
- Develop strategies for inter-cultural practice
- Organize, lead and participate in discussions, interviews and meetings
- Strengthen self-confidence and level of conviction
- Develop active listening and understanding to reformulate, explain and argue
- Acquire notions of corporate culture and values
- Develop well-being at work and a sense of responsibility
- Enhance team work

Course contents

Business Environment: exercises to explore in practice the areas of business and marketing

Field-related or inter-cultural project:

- Field-based radio project: prepare, conduct and promote interviews for ECN's radio programme: L'Heure Centralienne (<http://www.euradionantes.eu/emission/l-heure-centralienne>), with the contribution of professors, doctorate students, industrial partners, industry players at fairs, etc.
- Inter-cultural project: construct a myplace4U eZoomBook, using the eZoomBook template. Devise a place branding strategy and analyse its impact on potential users of the myplace4U eZoomBook.

Course material

Written and televised press, information and digital tools, general documents business environment and company strategies.

Internet conferences (Ted Talks, etc.), our own educational materials on Hippocampus (Moodle).
Our own eZoomBook template for the Intercultural project.

LANGUAGE OF INSTRUCTION	ECTS CREDITS	LECTURES	TUTORIALS	LABO	PROJECT	EXAM
English	4	14 hrs	16 hrs	0 hrs	0 hrs	2 hrs

CULTURAL AND COMMUNICATION ENGLISH

CITY AND URBAN ENVIRONMENTS - ATMOSPHERE, WATER AND ENVIRONMENT

YEAR 1 - AUTUMN SEMESTER

LEAD PROFESSOR: Spencer HAWKRIDGE

Objectives

Introduction to Cultural and Communicational English:

- Understand the general concepts of communication English (different levels of language, etc.)
- Build a communicational project
- Develop strategies for enhanced interaction
- Organize, lead and participate in discussions, interviews and meetings
- Behavioral skills in an inter-cultural environment:
- Strengthen engagement and level of conviction
- Develop a capacity to explain and argue
- Acquire notions of corporate culture and values
- Enhance team work

Course contents

Cultural and Communicational English: exercises to explore in practice the areas of culture and communication

Inter-cultural project (for example, documentary project, publishing project: construct a work of fiction or of educational value and experience the complete publishing process)

Course material

Written and televised press, information and digital tools, general documents business environment and company strategies.

Internet conferences (Ted Talks, etc.), our own educational materials on Hippocampus (Moodle).

Our own eZoomBook template for the Intercultural project.

LANGUAGE OF INSTRUCTION	ECTS CREDITS	LECTURES	TUTORIALS	LABO	PROJECT	EXAM
English	4	0 hrs	32 hrs	0 hrs	0 hrs	0 hrs

FRENCH LANGUAGE

CITY AND URBAN ENVIRONMENTS - ATMOSPHERE, WATER AND ENVIRONMENT
YEAR 1 - AUTUMN SEMESTER

LEAD PROFESSOR: Silvia ERTL

Objectives

The objective is to familiarize the learner with the French language and French culture through an entertaining task-based communicative language teaching, focused on speaking combined with:

- Phonetics
- Self-correcting exercises on our learning platform
- Learning Lab activities
- Project work
- Tutoring

Course objectives include the acquisition and reinforcement of vocabulary, syntax, and pronunciation by both traditional means and through the use of digital resources. Students will learn general French, develop language skills of oral and written comprehension and expression.

After completing this course (32 hours + personal work), the students will be able to communicate in spoken and written French, in a simple, but clear manner, on familiar topics in the context of study, hobbies etc. Another important goal of this course is to introduce the student to French culture. At the end of the course (2 semesters), complete beginners can achieve an A1 level and some aspects of the A2 of The Common European Framework of Reference for Languages. More advanced students may aim for B1/B2 levels.

Course contents

Full range of practical communication language exercises: reading comprehension, listening comprehension, written expression, oral expression.

Learners will be able to use the foreign language in a simple way for the following purposes:

1. Giving and obtaining factual information:
 - personal information (e.g. name, address, place of origin, date of birth, education, occupation)
 - non-personal information (e.g. about places and how to get there, time of day, various facilities and services, rules and regulations, opening hours, where and what to eat, etc.)
2. Establishing and maintaining social and professional contacts, particularly:
 - meeting people and making acquaintances
 - extending invitations and reacting to being invited
 - proposing/arranging a course of action
 - exchanging information, views, feelings, wishes, concerning matters of common interest, particularly those relating to personal life and circumstances, living conditions and environment, educational/occupational activities and interests, leisure activities and social life

3. Carrying out certain transactions:

- making arrangements (planning, tickets, reservations, etc.) for travel, accommodation, appointments, leisure activities
- making purchases
- ordering food and drink

Course material

Preparation manuals, our own tailor-made documents, written and televised press, internet, general civilization documents, digital tools, our own educational materials on Hippocampus (Moodle).

LANGUAGE OF INSTRUCTION	ECTS CREDITS	LECTURES	TUTORIALS	LABO	PROJECT	EXAM
French	4	0 hrs	32 hrs	0 hrs	0 hrs	0 hrs

YEAR 1 - SPRING SEMESTER

Fluid Mechanics 2

Hydrology and transfers in soils

Introduction to Computational Fluid Dynamics

Urban Realities Review

Urban Management and Planning

Environmental Data Analysis

Cultural and Communication English

French Language

FLUID MECHANICS 2

CITY AND URBAN ENVIRONMENTS - ATMOSPHERE, WATER AND ENVIRONMENT
YEAR 1 - SPRING SEMESTER

LEAD PROFESSOR: Guillaume DUCROZET

Objectives

At the end of the course (30 hours + personal work) the students will be able to:

- Apply the potential flow theory to simple configurations in fluid dynamics.
- Identify the limitations of the potential flow theory.
- Identify the sources of head loss in an internal flow.
- Evaluate the necessary power of a pump in a hydraulic system.
- Calculate the forces exerted on an object in a flow using Euler's theorem.
- Design experimental facilities for head loss identification and force measurements.

Course contents

This course is a follow-up to 'Fluid Mechanics 1', which presents the fundamentals and general principles of fluid mechanics. The aim is now to provide simple tools/formula to extract global information which is useful from an engineering point of view for fluid mechanics problems. The lectures cover the following topics:

- Potential flows
- Transport theorems and integral balances in fluid mechanics
- Head losses and the generalized Bernoulli's equation
- Momentum balance: Euler's theorem

In addition to those lectures, tutorials and different lab sessions will allow the students to apply the theoretical knowledge to practical configurations.

Course material

- F. White, Fluid mechanics, McGraw-Hill, New York.
- B.R. Munson et al., Fundamentals of fluid mechanics, John Wiley, New York.

LANGUAGE OF INSTRUCTION	ECTS CREDITS	LECTURES	TUTORIALS	LABO	PROJECT	EXAM
English	5	8 hrs	10 hrs	12 hrs	0 hrs	2 hrs

HYDROLOGY AND TRANSFERS IN SOILS

CITY AND URBAN ENVIRONMENTS - ATMOSPHERE, WATER AND ENVIRONMENT
YEAR 1 - SPRING SEMESTER

LEAD PROFESSOR: Katia CHANCIBAULT

Objectives

At the end of the course (30 hours + personal work) the students will be able to:

- List the different components of the water cycle
- Calculate a hydrological budget
- Analyze catchment response to rainfall, linked to soil type, catchment morphology, climatic conditions
- Demonstrate a good understanding of the laws governing water flow in soils and groundwater flow
- Apply simple quantitative analysis techniques to solve subsurface water transfer problems
- Know about a few basic mass transport processes

Course contents

This course aims to present the water cycle with its different components, their formations and their driving conditions. The delineation of catchment will be explained and the concept of water budget at the catchment scale will be detailed. Some modelling concepts will be presented. Moreover, this course covers the fundamentals of subsurface flow and transport. Class topics to be addressed: natural porous media, flow in saturated porous media, groundwater flow, variably saturated flow in soils, non-reactive solute transport in porous media and reactive transport in soils.

Course material

- Bear, J., 1972: Dynamics of Fluids in Porous Media, Elsevier, New York
- Bird, R. B., W. E. Stewart and E. N. Lightfoot, 1960: Transport Phenomena, John Wiley & Sons, New York
- Pr. A. Musy web course: <http://www.echo2.epfl.ch/e-drologie>

LANGUAGE OF INSTRUCTION	ECTS CREDITS	LECTURES	TUTORIALS	LABO	PROJECT	EXAM
English	4	16 hrs	14 hrs	0 hrs	0 hrs	2 hrs

INTRODUCTION TO COMPUTATIONAL FLUID DYNAMICS

CITY AND URBAN ENVIRONMENTS - ATMOSPHERE, WATER AND ENVIRONMENT
YEAR 1 - SPRING SEMESTER

LEAD PROFESSOR: Isabelle CALMET

Objectives

At the end of the course (30 hours + personal work) the students will be able to:

- Understand the basic concepts of Computational Fluid Dynamics
- Solve 1D partial derivative equations using finite difference or finite volume methods
- Have a critical view of various schemes in terms of stability and errors
- Design and perform simulations for incompressible laminar flow in simple configurations
- Analyse CFD results according to the mesh, boundary conditions and schemes

Course contents

This course is an introduction to Computational Fluid Dynamics, a discipline that students will be led to use in their career as engineers or researchers in the fields of hydrology or atmospheric sciences. The objective is to provide basic knowledge about CFD through the presentation of the:

- mathematical model used in finite difference and finite volume approaches
- finite difference method and schemes to approximate spatial derivatives
- finite volume method and approximation of surface and volume integrals
- methods to solve unsteady problems
- application to the solution of the Navier-Stokes equations (variable arrangement on the grid, boundary conditions, pressure terms issues etc)

Lab sessions will be organized throughout the course in order to improve the appropriation of lecture contents. In addition, the students will have their first experience on the numerical simulation of simple flows through the use of a commercial CFD code.

Course material

- Ferziger and Péric, 2002, Computational Methods for Fluid Dynamics, Springer-Verlag Eds.

LANGUAGE OF INSTRUCTION	ECTS CREDITS	LECTURES	TUTORIALS	LABO	PROJECT	EXAM
English	5	10 hrs	6 hrs	8 hrs	8 hrs	2 hrs

URBAN REALITIES REVIEW

CITY AND URBAN ENVIRONMENTS - ATMOSPHERE, WATER AND ENVIRONMENT
YEAR 1 - SPRING SEMESTER

LEAD PROFESSOR: Pascal JOANNE

Objectives

At the end of the course (30 hours + personal work) the students will be able to:

- Understand the formation and transformations of a city.
- More specifically, analyze the issues that govern a large city.
- Identify and work on urban environmental issues.

Course contents

What do we know about a city? What are its origins?
From what size of agglomeration can one speak of city?
How does it develop?
How is its space organized and distributed?
Why do streets and buildings have such shapes?

The course attempts to answer these questions through a case study on one or two cities (probably Bordeaux and Rochefort sur Mer, both south of Nantes). These cities will be the subject of a two-day study visit (in March or April).

An introduction in the form of lectures and tutorials will work on the definition of a city (geography, urban planning, architecture, etc.). Then the trip will be prepared beforehand with the students who will be entrusted with a thematic team presentation on site. On-site visits will be an opportunity to meet those responsible for urban management, architectural heritage and promoters of urban projects.

Course material

- Kevin Lynch, 1999, L'image de la Cité, trad. par Marie-Françoise Vénard et Jean-Louis Vénard de The Image of the City (1960), Paris, Dunod, 221p.
- Camillo Sitte, l'Art de bâtir les villes, Le Seuil
- Philippe Paneray, Analyse Urbaine. Editions Parenthèses

LANGUAGE OF INSTRUCTION	ECTS CREDITS	LECTURES	TUTORIALS	LABO	PROJECT	EXAM
English	4	6 hrs	8 hrs	16 hrs	0 hrs	2 hrs

URBAN MANAGEMENT AND PLANNING

CITY AND URBAN ENVIRONMENTS - ATMOSPHERE, WATER AND ENVIRONMENT
YEAR 1 - SPRING SEMESTER

LEAD PROFESSOR: Sylvie TURCK

Objectives

At the end of the course (30 hours + personal work) the students will have acquired knowledge on:

- French public policies and local authorities
- urban services
- urban planning and public development
- waste management
- mobility
- climate and energy
- water management
- urban risks management

Course contents

The aim is to propose - after a general introduction and a presentation of the local context by theme - an illustration of the coordinated implementation of Nantes Métropole's public policies in a specific area: the Pré-Gauchet / Malakoff district.

Course material

- Presentation based on slide show
- Brochures (activity report, news documents)
- Field visits
- Illustrations (plans, diagrams etc)

LANGUAGE OF INSTRUCTION	ECTS CREDITS	LECTURES	TUTORIALS	LABO	PROJECT	EXAM
English	4	16 hrs	0 hrs	8 hrs	6 hrs	2 hrs

ENVIRONMENTAL DATA ANALYSIS

CITY AND URBAN ENVIRONMENTS - ATMOSPHERE, WATER AND ENVIRONMENT
YEAR 1 - SPRING SEMESTER

LEAD PROFESSOR: Laurent PERRET

Objectives

The course objectives are to:

- Introduce students to the complexities and challenges of characterization of natural systems and atmospheric flows in particular
- Provide the scientific basis for how environmental sensors work
- Evaluate and select appropriate measurement methods and sampling design to quantify key environmental variables & processes
- Study how sensors are deployed in the field, acquire and analyze data,
- Interpret and analyze laboratory and field data and report main findings

Course contents

Measurements provide an essential basis for understanding or deduction of physical processes and for validation of theory or numerical models. The present course aims to provide the students with an introduction to experimental methods in the framework of the study of atmospheric flows and micrometeorology, including both measurements techniques and data analysis methods.

Course material

- Handbook of Experimental Fluid Mechanics, Springer;
- Handbook of Micrometeorology, Kluwer;
- Design and Analysis of Experiments, Springer.

LANGUAGE OF INSTRUCTION	ECTS CREDITS	LECTURES	TUTORIALS	LABO	PROJECT	EXAM
English	4	12 hrs	10 hrs	8 hrs	0 hrs	2 hrs

CULTURAL AND COMMUNICATION ENGLISH

CITY AND URBAN ENVIRONMENTS - ATMOSPHERE, WATER AND ENVIRONMENT

YEAR 1 - SPRING SEMESTER

LEAD PROFESSOR: Spencer HAWKRIDGE

Objectives

Interview techniques and communicational English:

- Understand the general concepts of interactive communication
- Build a media project
- Acquire interview techniques
- Understand the process of sourcing and checking facts and figures
- Understand issues related to plagiarism
- Create a bibliography
- Behavioral skills in an inter-cultural environment:
- Strengthen self-confidence and capacity for interaction
- Develop active listening and reformulation skills
- Develop networking skills

Course contents

Cultural and Communicational English: exercises to explore in practice the areas of culture and communication.

Media project (for example: prepare, conduct and promote interviews for a radio programme: L'Heure Centralienne (<http://www.euradionantes.eu/emission/l-heure-centralienne>), with the contribution of professors, PhD students, industrial partners, industry players at fairs, etc.

Course material

Written and televised press, information and digital tools, general documents business environment and company strategies.

Internet conferences (Ted Talks, etc.), our own educational materials on Hippocampus (Moodle).
Our own eZoomBook template for the Intercultural project.

LANGUAGE OF INSTRUCTION	ECTS CREDITS	LECTURES	TUTORIALS	LABO	PROJECT	EXAM
English	4	0 hrs	32 hrs	0 hrs	0 hrs	0 hrs

FRENCH LANGUAGE

CITY AND URBAN ENVIRONMENTS - ATMOSPHERE, WATER AND ENVIRONMENT
YEAR 1 - SPRING SEMESTER

LEAD PROFESSOR: Silvia ERTL

Objectives

The objective is to familiarize the learner with the French language and French culture through an entertaining task-based communicative language teaching, focused on speaking combined with:

- Phonetics
- Self-correcting exercises on our learning platform
- Learning Lab activities
- Project work
- Tutoring

Course objectives include the acquisition and reinforcement of vocabulary, syntax, and pronunciation by both traditional means and through the use of digital resources. Students will learn general French, develop language skills of oral and written comprehension and expression.

After completing this course (32 hours + personal work), the students will be able to communicate in spoken and written French, in a simple, but clear manner, on familiar topics in the context of study, hobbies etc. Another important goal of this course is to introduce the student to French culture. At the end of the course (2 semesters), complete beginners can achieve an A1 level and some aspects of the A2 of The Common European Framework of Reference for Languages. More advanced students may aim for B1/B2 levels.

Course contents

Full range of practical communication language exercises: reading comprehension, listening comprehension, written expression, oral expression.

Learners will be able to use the foreign language in a simple way for the following purposes:

1. Giving and obtaining factual information:

- personal information (e.g. name, address, place of origin, date of birth, education, occupation)
- non-personal information (e.g. about places and how to get there, time of day, various facilities and services, rules and regulations, opening hours, where and what to eat, etc.)

2. Establishing and maintaining social and professional contacts, particularly:

- meeting people and making acquaintances
- extending invitations and reacting to being invited
- proposing/arranging a course of action
- exchanging information, views, feelings, wishes, concerning matters of common interest, particularly those relating to personal life and circumstances, living conditions and environment, educational/occupational activities and interests, leisure activities and social life

3. Carrying out certain transactions:

- making arrangements (planning, tickets, reservations, etc.) for travel, accommodation, appointments, leisure activities
- making purchases
- ordering food and drink

Course material

Preparation manuals, our own tailor-made documents, written and televised press, internet, general civilization documents, digital tools, our own educational materials on Hippocampus (Moodle).

LANGUAGE OF INSTRUCTION	ECTS CREDITS	LECTURES	TUTORIALS	LABO	PROJECT	EXAM
French	4	0 hrs	32 hrs	0 hrs	0 hrs	0 hrs